

**What is claimed is:**

1. A method of growing a carbon nanostructure comprising the steps of:
  - a. providing a substrate;
  - b. depositing a catalyst dot onto said substrate; and
  - c. growing a carbon nanostructure on said catalyst dot.
2. A method in accordance with claim 1 wherein said substrate comprises at least one of the group consisting of a nanowire, a cantilever, a conductive micro/nanometer structure, and a wafer.
3. A method in accordance with claim 1 wherein said depositing step further comprises the steps of:
  - a. providing a substrate having thereon at least two electrically conductive nanostructures spaced no more than about 50  $\mu\text{m}$  apart; and
  - b. depositing a catalyst dot on at least one of said nanostructures by electric field-directed, programmable, pulsed electrolytic metal deposition.
4. A method in accordance with claim 1 wherein said growing step further comprises a plasma-enhanced chemical vapor deposition method.
5. A method in accordance with claim 1 wherein said carbon nanostructure is grown in a direction perpendicular to a surface of said substrate.
6. A method in accordance with claim 1 wherein said carbon nanostructure is grown on a flat-tipped surface having an upward-facing catalyst dot.
7. A method in accordance with claim 1 wherein said carbon nanostructure further comprises at least one of the group consisting of a single-wall carbon nanotube, a multi-wall carbon nanotube, a carbon nanofiber, a carbon needle, and a carbon whisker.
8. A method in accordance with claim 1 wherein said depositing step further comprises an automated process.

9. A method in accordance with claim 1 wherein said growing step further comprises an automated process.
10. An article comprising a substrate having a catalyst dot disposed thereon, said catalyst dot having a carbon nanostructure disposed thereon.
11. An article in accordance with claim 10 wherein said substrate comprises at least one of the group consisting of a nanowire, a cantilever, a conductive micro/nanometer structure, and a wafer.
12. An article in accordance with claim 10 wherein carbon nanostructure is oriented in a direction perpendicular to a surface of said substrate.
13. An article in accordance with claim 10 wherein said carbon nanostructure further comprises at least one of the group consisting of a single-wall carbon nanotube, a multi-wall carbon nanotube, a carbon nanofiber, a carbon needle, and a carbon whisker.

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